

when the L/S ratio is above 1 to 2 the percentage of complications is markedly decreased.

The technique of aspirating amniotic fluid has been perfected to the point where it produces a very low risk to the fetus and the mother. Approximately 2 ml of amniotic fluid is needed for this test.

In all elective cesarean sections or induction deliveries for therapeutic reasons, this test should be performed before operation so that the physician can be assured that the maturity of the infant's lung is adequate to support life. If this is carried out, in almost all cases the infant can be delivered with minimal risk of the respiratory distress syndrome.

SIMON C. BRUMBAUGH, JR., MD

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## Hypothalamic Hormones

IT IS NOW WELL KNOWN that the hypothalamus is the ultimate controller of the secretion of anterior pituitary hormones. Polypeptides of hypothalamic origin have been identified and successfully synthesized for TRF (thyrotropin-releasing factor, 1971), LRF (luteinizing hormone-releasing factor, 1972), and SRIF (somatotropin-release inhibiting factor, 1973), by Drs. R. Guillemin and A.V. Schally's laboratories. Unexpectedly, TRF not only causes pituitary release of TSH but also a prompt release of prolactin. Thus, the association of thyroid dysfunction and galactorrhea may now be explained and TRF may be considered as a specific prolactin-releasing factor. LRF induces a prompt gonadotropin secretion which is greater for LH than for FSH. It has been shown that estrogen exerts a direct influence on pituitary gonadotropic cell as evidenced by a change in LRF responses. Both TRF and LRF have provided a direct and sensitive test in distinguishing disorders of hypothalamic versus pituitary origin. Hypogonadotropic amenorrhea with normal or not infrequently exaggerated response to LRF may be assured of a functional disturbance of hypothalamus as a cause rather than pituitary neoplasm. The usefulness of LRF in the induction of ovulation and future development of blocking agents for LRF (LRF-analogs) in the conception control is promising. Most

recently, a peptide hormone was synthesized which inhibits growth hormone release. Indeed, a new era of neuroendocrinology has begun with expectation that soon it will apply to clinical medicine.

S. S. C. YEN, MD

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## Use of Amniotic Fluid: Assessment of the Fetus

AMNIOTIC FLUID, obtained early in the second trimester by transabdominal amniocentesis, can be used to diagnose a number of hereditary and congenital disorders in the fetus. Biochemical enzyme tests on uncultivated or cultivated cells, sex determination and karyotyping may then be performed in time to consider therapeutic abortion.

Management of the rhesus sensitized pregnancy mainly rests on the results of spectrophotometric analysis of amniotic fluid. As the concentration of bilirubin in amniotic fluid reflects the severity of fetal hemolytic disease, the optical density at 450 microns is used to indicate if fetal transfusion or premature delivery is necessary.

The amniotic fluid creatinine concentration, optical density and cytologic study are all useful in determining the duration of the gestation, size of the fetus, and fetal hepatic and renal maturity. Phospholipid analysis of the fluid reflects fetal lung maturity and helps in predicting whether respiratory distress will develop in the newborn.

ROBERT K. CREASY, MD

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## Current Concepts of Fetal Monitoring

RECENT STUDIES of perinatal brain damage in fetal monkeys support the concept that "ominous" fetal heart rate (FHR) patterns may reflect fetal hypoxia and asphyxia. Such FHR patterns are difficult to detect by auscultation but are readily detected with electronic techniques.

At present, fetal monitors are used mainly for management of high-risk patients, not only to re-

cord FHR patterns but also to provide an accurate assessment of uterine contractions. The importance of the latter as a repetitive stress to the fetus is now being recognized.

Clinical experience with fetal monitoring having suggested that it is of benefit to the high-risk fetus, serious consideration is being given to the advisability of monitoring all patients in labor in order to decrease the birth hazards for uncomplicated as well as complicated pregnancy.

EDWARD H. HON, MD

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## Serum FSH-LH Determinations in Gynecologic Practice

THE DEVELOPMENT of radioimmunoassay for the measurement of protein hormones has made it possible to measure the small amounts of follicle-stimulating hormone (FSH) and luteinizing hormone (LH) present in serum. Therefore, it is no longer necessary to depend upon bioassay of urinary gonadotropins. The latter methods were cumbersome because of the necessity of collecting 24-hour specimens of urine and because of the lack of sensitivity of the methods, particularly those for the measurement of LH.

Serum FSH and LH have been measured during the various phases of life such as childhood, menstruating years, and postmenopausal years. They have also been measured at frequent intervals during normal and abnormal menstrual cycles. In the latter, it has been noted that FSH and LH levels change very rapidly and dynamically, particularly at the time of ovulation: The amount of LH may double over a six-hour period and then quadruple over the ensuing six hours.

These reports make it clear that single determinations of FSH and LH are of value for the detection of some conditions. Absence of pituitary function in this sphere will be reflected by undetectable FSH and LH. Ovarian failure, for whatever reason, will be reflected by very high levels of FSH and LH.

For the evaluation of menstrual disorders such as oligomenorrhea, amenorrhea, and inadequate corpus luteum, single measurements of FSH and LH are not sufficient. In these situations the pattern of FSH and LH levels during complete cycles is essential for proper understanding. The ratio be-

tween FSH and LH may well be important in some of these conditions. Therefore it is necessary to collect daily specimens of blood for the delineation of those patterns.

Single determinations will not suffice because the levels of FSH and LH may both be well within the range of normal for a menstrual cycle and yet the complete pattern for a full cycle will differ significantly from that for a normal cycle. Patients with polycystic sclerotic ovaries may have LH levels which are chronically elevated but not outside of the range for a normal menstrual cycle. Similarly, some patients with amenorrhea will have chronically depressed levels of LH. A patient with an inadequate corpus luteum may have lower than usual levels of FSH in the early part of the cycle but still within the range noted in normal cycles.

WILLIAM J. DIGNAM, MD

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## Laminaria Tents as an Aid for Suction Abortion

RAPID INSTRUMENTAL DILATATION of the cervix before suction abortion is frequently the most difficult and traumatic part of the procedure. The use of laminaria tents formed from seaweed (*laminaria digitata*) to accomplish this dilatation has greatly simplified the operation.

A laminaria tent is inserted without anesthesia into the cervical os so that only the tip of the tent can be seen at the external os. By hygroscopic action the tent expands from a diameter of 2 to 3 mm to 9 to 12 mm. At the time of suction curettage, 12 to 18 hours later, the laminaria tent is removed, almost always without difficulty. Suction curettage is completed in the usual fashion.

In at least two out of three cases, the cervix is dilated a minimum of 9 mm at the time of suction. Further dilatation, if needed, is almost always easily accomplished. Complications have been few. The rare impaction of the tent in the cervix can apparently be treated by careful mechanical dilatation of the cervix adjacent to the tent, thus allowing its removal. The risk of infection does not